

CLAIMS

What is claimed is:

1. An apparatus, comprising:
a generally planar component for use in a high pressure electrochemical cell; and
a band encircling a perimeter edge of the component, wherein the band has an inelasticity that minimizes deformation of the component by pressurized fluids.
2. The apparatus of claim 1, wherein the component is press-fit into the band.
3. The apparatus of claim 1, wherein the band is made from a metal or a polymer.
4. The apparatus of claim 1, wherein the band is formed around the component.
5. The apparatus of claim 1, wherein the generally planar component is a polymer component.
6. The apparatus of claim 5, wherein the pressurized fluids press against the component and the component presses outward against the band.
7. The apparatus of claim 5, wherein the pressurized fluids impart a force against the band that puts the band in tension.
8. The apparatus of claim 1, further comprising:
a plurality of generally planar components and a plurality of bands, each band encircling one of the plurality of components.

9. The apparatus of claim 1, further comprising:
a plurality of electrochemical cells and a plurality of bands, each band encircling one of the plurality of electrochemical cells.
10. The apparatus of claim 1, further comprising:
a plurality of sub-stacks and a plurality of bands, each band encircling one of the plurality of sub-stacks.
11. The apparatus of claim 1, wherein the bands comprise aromatic polyamide fibers.
12. An electrochemical cell, comprising:
a stack of generally planar components each having a perimeter edge, wherein the components include at least one polymer frame for containing reactant fluids; and
a band extending around the perimeter of the stack of components to reinforce the polymer frame against deforming under the pressure of the reactant fluids.
13. The cell of claim 12, wherein the stack of components includes an electronically conductive bipolar plate.
14. The cell of claim 13, wherein the bipolar plate has a perimeter edge that is radially inward from the perimeter edge of the polymer frames.
15. The cell of claim 14, wherein the band is electrically conductive.
16. The cell of claim 12, wherein the band is wound around the perimeter edge of the stack of components.
17. The cell of claim 12, wherein the band is positioned around the perimeter of the stack.